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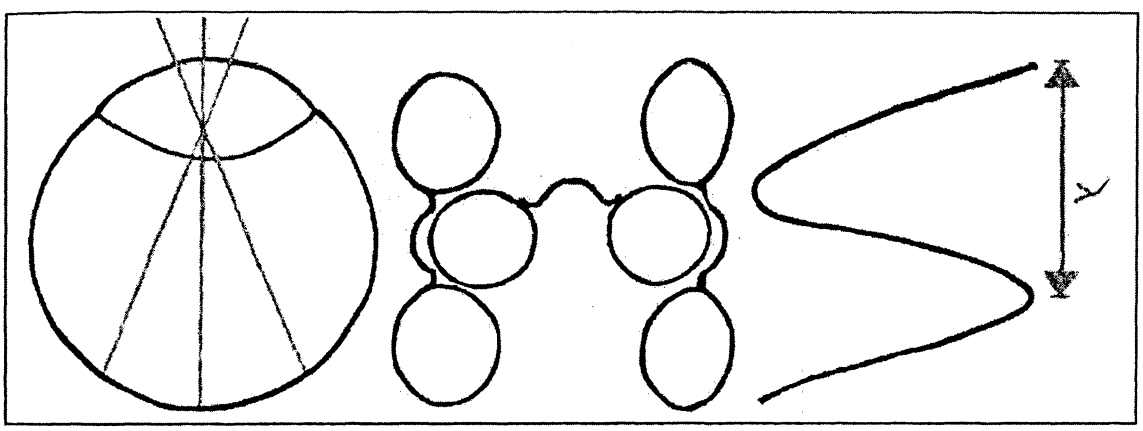

Official Publication of the Optometric Historical Society

Hindsight: Journal of Optometry History publishes material on the history of optometry and related topics. As the official publication of the Optometric Historical Society, Hindsight: Journal of Optometry History supports the purposes and functions of the Optometric Historical Society.

The purposes of the Optometric Historical Society, according to its by-laws, are:
- to encourage the collection and preservation of materials relating to the history of optometry,
- to assist in securing and documenting the recollections of those who participated in the development of optometry,
- to encourage and assist in the care of archives of optometric interest,
- to identify and mark sites, landmarks, monuments, and structures of significance in optometric development, and
- to shed honor and recognition on persons, groups, and agencies making notable contributions toward the goals of the society.

The official publication of the Optometric Historical Society, published quarterly since its beginning, was previously titled:
Newsletter of the Optometric Historical Society, 1970-1991 (volumes 1-22), and
Hindsight: Newsletter of the Optometric Historical Society, 1992-2006 (volumes 23-37).
Hindsight: Journal of Optometry History began in 2007 with volume 38, number 1.

On the cover: The drawing represents OHS for Optometric Historical Society: the O an elementary schematic of an eye, the H three intersecting pairs of spectacles, and the S a representation of a light wave with the Greek letter lambda indicating one wavelength. The drawing artist was Diane Goss.

OHS website: www.opt.indiana.edu/ohs/opthohiso.html

HINDSIGHT: Journal of Optometry History

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Manuscripts submitted for publication should be sent to the Editor at the email or postal address above. A Word document attached to an email message is the preferred means of submission. Paper copy submissions sent by postal service will also be considered.

Glenn A. Fry Medal Acceptance, November 16, 2007

Jay M. Enoch, O.D., Ph.D.
Professor of the Graduate School, Dean Emeritus, University of California at Berkeley, School of Optometry (MC 2020), Berkeley, CA 94720-2020, jmenoch@berkeley.edu

Dean Melvin Shipp, Members of the Faculty, Students, Guests, Ladies and Gentlemen:

Thank you so very much for this very fine and distinguished recognition! Indeed, Glenn Ansel Fry played a major role both in my career in optometry and as an academic in vision science. And, without doubt, through his educational and research efforts, he greatly influenced our profession of optometry. This College remains his proud and enduring legacy. Glenn Fry tried very hard indeed, and in quite a number of ways, he succeeded admirably!

So saying, very few individuals knew Glenn well, and sadly, not too many of these people remain with us today. He was both a very bright man and a highly complex individual! To my surprise, I found he was self-taught in a number of fields, for example, in mathematics. Today, I will comment on some of our interactions together, and I will share some aspects of events with which, I suspect, most of you are not familiar.

Perhaps a good place to start is a lunchtime conversation I had with Mrs. Martha Fry, on the occasion of a visit to Columbus by Walter Stanley Stiles, F.R.S. I had received my Ph.D. a year or so earlier, and Martha turned to me with a pleasant smile and said, "Jay, now you must call him Glenn." Please realize he was not the forbidding type, but he also was not, shall I say, warm and fuzzy. Shortly thereafter, with urging from Martha, I tried, Glenn, Glenn, Glenn, it just wouldn't come out right, but I persisted.

A few years later, as I was about to take up my duties as a junior faculty member in the Department of Ophthalmology at Washington University in Saint Louis, Glenn came up to me with a shy smile, a tilt of the head, and a bit of a wink, and asked whether I had encountered a certain secretary in the Department. Based on this and other comments, one might conclude the time period during which Glenn was affiliated with Washington University must have been among, shall I say, the halcyon years for this young scientist.

After receiving his Ph.D. at Duke, Glenn held a held a two-year Post-Doctoral Fellowship at Washington University. There, he worked within the Departments of Ophthalmology and Neurology, both located in McMillan Hospital. This hospital is part of the *then large, now enormous* Barnes & Jewish Hospital Medical Center in St. Louis. In part, Glenn worked with another very able Post-Doctoral Fellow, S. Howard Bartley, Ph.D. They performed some particularly meaningful ERG studies together during the time they spent together. This research was similar to research later done by Bob Boynton when he was a student with Lorrin Riggs.

At Washington U., Glenn's work was performed most probably under the supervision of Percy Cobb, M.D., an ophthalmologist known for psychophysical research on vision, visual acuity, and responses to different lighting conditions. He also worked with George H. Bishop, a Ph.D., who was both an electronics expert and a neuro-physiologist of considerable renown. He had worked for many years with future Nobel Laureates Gasser and Erlanger. Around that same time period, the Chair of the Department of Ophthalmology at Washington University was Harvey Howard, who is remembered best for research leading to development of the Howard-Dolman Test of stereo-acuity.

Interestingly, Prof. Gerald Westheimer told me that Fry originally sought a Post-Doctoral Fellowship with Prof. Leonard Troland of Harvard. Sadly, at about that time, Troland died in a terrible accident at age 43 on May 27, 1932. Fry then turned to Percy Cobb.

When I first arrived at Washington U. in July, 1958, placed in my laboratory, I found a number of older research instruments, and pieces of equipment, with attached tags upon which the names of Fry, Bartley, Cobb, Bishop, and Howard were appended. I don't know what happened to these items. I did use some of the fine lenses, filters, and other components from those instruments in my own apparatuses.

When I received my Ph.D. in 1956, I had quite a number of good job offers from industrial and military research laboratories, but none from optometric institutions. I decided to accept an offer to serve with Dr. Richard Tousey at the Naval Research Laboratory in Washington, D.C. I was to conduct research on optical and visual studies associated with the then nascent space and rocket programs. At about the same time, Glenn Fry received a sizeable Air Force Research Contract. He very much needed help on this research program (others turned him down!), and he asked me to work with him on this research. I felt I owed him, and I withdrew from the kind offer made by Tousey.

A few days after this decision was made, Glenn telephoned me and told me he was hiring an individual to assist me in our work on the Air Force research project. He sent her into me to be interviewed. This lady's name was Mildred Hindman. I encountered an aged woman, wearing (in lieu of a dress) a dull brown and none-too-clean khaki U.S. Army overcoat liner. A torn slip hung down about 6 inches below the hem. She was obviously disheveled, she had no teeth, her hair apparently had not seen a comb in days, and frankly, she was "drunk as a skunk." I told her to wait a minute or two. I went charging into see Fry, and said to him, "I know I am a junior here, but this is just ridiculous!" Glenn giggled, and said, "Jay, give her a chance; she has a good back-ground." I gritted my teeth, but followed his advice.

In fact, Glenn was absolutely correct! Aunt Mil, as she was later called, proved to be an absolute jewel, we became fast friends, and she truly taught me a lot about science and just plain life! She was a full "bird" Colonel in the Regular Army (in fact, she was one of *very few women* in the then Regular Army!). During World War II, she

served on General Eisenhower's staff, and headed photo-interpretation for the Omaha and Utah Beach landings on D-Day. In time, I came to count on her in all things!

I learned our research program was part of "The Spy in the Sky" satellite program which was initiated 50 years ago, about the time when Sputnik was launched by the Soviets.

For our investigations, Glenn mainly guided psychophysical studies involving a very broad range of visual detection tasks. The goal was to predict detection and recognition rates for a variety of targets under all manner of conditions. In fact, the task required was rather like some research Glenn had done earlier at Washington University with Percy Cobb. We varied test targets, their contrast, target and background luminance, size, etc. We controlled and introduced various forms and degrees of blur. Not surprisingly, Glenn designed multiple complex mechanical devices for this task, as well as devices for automatic recording of data. Under my supervision, these instruments were used to gather test data 16 hours a day for years. I was ably assisted by Aunt Mil.

Although I played a meaningful role in that part of the program, I became interested in the photo-interpreter's need to search for, to recognize, and to recover targets of choice against the complex backgrounds of aerial photographs obtained from existing and developmental airborne cameras as well as transmission systems from our early satellites. Camouflage of targets was an added factor considered. For these analyses, I modified used American Optical Company eye movement-tracking assessment devices. I broke the recorded trace into horizontal and vertical tracks for measurements, and later developed a modification which allowed mapping of observer fixation locations along with durations of fixation. We plotted the path taken when an observer viewed specified photographs. And, for this purpose, we also employed some fascinating experimentally derived aerial maps designed for radar and infra-red detection of targets.

In addition, we asked, how does an individual scan a scene, either using photographs obtained with the camera perpendicular to the ground, versus pictures recorded at a slant-angle relative to the ground or horizon. Searching such photographs was quite different than for those photographed perpendicularly. Trained photo-interpreters were also used as subjects, and, in time, we developed tests which graded their skills, and informed us as to how these skilled individuals learned and performed their very complex tasks. With this information, we sought to determine which non-trained observers were best suited for this type of work.

Once a month, Glenn and I had to attend meetings at Rome Air Force Base, NY (a Strategic Air Command headquarters center), and we also attended special briefings elsewhere. Many years later, on "9/11", I recognized on TV that the current President Bush was being taken to a safe location at one of these sites. Today, there are published books on "The Spy in the Sky" related-programs. For those interested in our very extensive work, a complete set of reports and papers is available in the O.S.U.

library. Over the years, this work was all declassified.

Before I sit down, I would like to direct a few words to current graduate students. *We never really know where we end up in research!* Just consider the above discussion. The topics Glenn and I addressed during those years were about as far as I could get from my future research on retinal receptor anatomy, directional sensitivity of the retina (i.e., the Stiles-Crawford effects of the first and second types), or waveguide transmission of radiant energy by photoreceptors. For that matter, our studies were also totally different from research I performed correcting neonatal vision and adding critical aphakic and aniseikonic corrections to infants. The latter made possible, or restored, binocularity in weeks-old children! These studies, in turn, also differed from research where I determined hyperacuity prior to surgery in order to assess post-surgical prognosis in the eyes of people with dense opacities of their ocular media. None of these projects anticipated complex issues encountered in investigations of visual fields in patients with the very serious Gilles de La Tourette Syndrome. Today, I am involved with studies of high myopia and traction upon, and translation of the retina and the choroid in a meaningful sample of cases onto the surface of the optic nerve head, and resultant maintenance of visual function upon the disc in these patients!

There is no real difference between basic and clinical (or other applied) research, and neither one domain, nor the other, is more or less important. Each is a part of a broad research continuum. *At issue is only the significance of, and quality of the research question asked, and the result obtained!*

It is critical for you to seek breadth in your training as well as depth. I was extremely lucky to have had a number of great teachers in my scientific career. Glenn Fry was one of the major ones! At O.S.U., I also must include Vince Ellerbrock (I was his teaching assistant for years); and Paul Fitts, a fine scholar here who taught me and others principles of human engineering; and, of course, Aunt Mil! Earlier, Isidore Finkelstein and George Smelser at Colombia taught me much about research, animal surgery, corneal clarity, contact lens fitting, and the academic life. Similarly, I benefited from guidance provided by Everett Kinsey and David Cogan at Harvard. In Saint Louis, Bernard Becker assembled a remarkable group of scientists who worked together in ways I have never seen before or since! Stanley Stiles and Brian Crawford took me in hand, and taught me enhanced rigor in research, as well as optical design and advanced optical-alignment skills. And last, but not least, the several years I worked closely with Hans Goldmann, Franz Fankhauser, and the fine group at Berne, Switzerland, were a high point in my training. Please realize our research training is "all of a piece", with inputs continuing throughout our entire career. Also, please show me the teacher who has not learned from his very able students!

The point here is not to tell you how important I am, but rather to indicate to you that breadth of acquaintances and contacts and knowledge of their ongoing research is a distinct asset to each one of you. Learn techniques in use, or in development by others. Be active! Determine how you can stay current, and be a meaningful

participant in the larger enterprise! Such connections pay off in the future both directly or indirectly. A fine local model is Ohio State's Fry Professor, Karla Zadnik.

Walt Whitman wrote, "Now voyager, sail forth to seek and to find."

I thank you all again for this very fine award, and for the opportunity to tell you a bit about a role played by Glenn and me working together, which I suspect few of you knew!

Archives for the Study of the History of Health Care: A Literature Review

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Abstract

This paper reviews literature pertinent to the preservation of archival material for the study of the history of health care. Topics considered in the review are the importance of archives for the study of health care history, basic terminology used in archival work, types of material preserved in health care archives, aspects of characteristics of health care archives, and examples of archives devoted to health care.

Key words: *archives, health care libraries, history of health care, history of optometry.*

Studying the history of health care brings many benefits. It helps to reveal perennial problems, general trends, societal expectations, advances in knowledge, effectiveness of delivery systems, and the impact of disease. It can bring breadth to one's perspective, and can illuminate previously successful or unsuccessful approaches to continuing controversies and problems. It can clarify attribution for various concepts and ideas, thus ensuring proper recognition and respect for persons who contributed to the field. It has also been suggested that the knowledge of history of health care and how illness affects patients "can help counteract the dehumanizing atmosphere that technology brings to medicine."[1] And, of course, studying history can be interesting in itself irrespective of any other considerations.

Interest in the history of health care can be readily shown by the proliferation of books and academic journals on the subject. A sampling of journals dedicated to the topic include Bulletin of the History of Medicine, Canadian Bulletin of Medical History, Journal of the History of Medicine and Allied Sciences, Medical History, Pharmacy in History, and Bulletin of the History of Dentistry.[2] Necessary to historical study is the preservation of research material in archives. The purpose of this paper is to review the literature on archives in health care.

Importance of Archives for the Study of History

In order to accurately portray and reasonably interpret the events of the past, the historian must have access to the records of the past. Comprehensive collections of books and journals are important for the study of history, but also essential are the original records produced in connection with the events in question. While the former is the province of libraries, the latter are held by an archives. An archives is a repository of non-current records of continuing value selected mainly for future use in research and reference. Archives may exist in various forms, such as a free-standing institution, a separate office within an organization, or a part of a library.

An archives maintained by an institution is important as "the authentic historical record" of the work of that institution.[3] Such an archives provides documentary evidence of the growth of the institution and shows how it has contributed to public well-being. It might also be viewed as an "information asset"[3] in that it contains information generated and accumulated by an institution in the form of records.

On a broader scale, a value of an archives for health care is that it may address general interests of the public or of health care workers. It also provides records needed to advance scholarship in the history of health care. An archives "can make history come alive for people."[4]

The use of archives can help historical researchers to dispel myths. Hofstetter[5] noted that "some...popularly accepted myths have incurred significant damage to the profession [of optometry] and have interfered with its progress. Myths without evidence need to be challenged, but the challenge is void without archival documentation."

Craig[6] conducted a survey to investigate types of research tools used by historians of Canadian medicine. The respondents were asked to report whether various materials (textual archives, books, journal articles, photographic archives, conference proceedings, etc.) were essential, very important, moderately important, or not important. The highest percentage of essential responses was obtained for textual archives. Of the researchers polled in the study, 73% indicated that textual archives were "essential," and none of them suggested that textual archives were "not important." Another highly ranked tool was journal articles. The percentage of researchers who considered journal articles to be essential was 69%.

Archival materials documenting health care may be used in ways completely unanticipated at present. They may also be used by persons with a remarkably broad range of reasons for interest in health care. A sampling of the possibly unexpected persons noted by Jordan[7] to have potential interest in health care archives includes "the historical novelist, who seeks to learn how gunshot wounds were treated...; the political scientist, writing a history of municipal function...; the professor of home economics, preparing a study of the national diet...; the student of veterinary science, studying the relationship between diseases of animals and men...; the sociologist, concerned with the socioeconomic condition of the American Indian...; the biographer...for his hero was subject to the frailness of the human body...; the social worker...for he knows only too well the relationship of poverty and maladjustment to health and disease...." Furthermore, Jordan[7] notes that "No historian can pen the history of a remote frontier post without reference to the work of the surgeon stationed there. The economist goes to medical sources to determine the effect of pandemics and plagues upon transportation. The writer of religious history, investigating the home missionary movement, finds time and time again mention of the part played by climate and disease in the formation or destruction of a congregation." Suffice it to say, without citing more of Jordan's examples, that health care pervades almost every aspect of human

existence, and documentation from an archives can help to reconstruct a picture of the human condition in the past.

Terminology

Before considering some specifics of archives for the study of the history of health care, some basic archival terms will be defined. Appraisal is the process by which records are evaluated and their potential long term value is assessed in order to decide whether they should be preserved. In addition to the paramount issue of potential future use of the item, some of the numerous factors which are considered in appraisal decisions are uniqueness of the item, format, possible preservation difficulties, completeness and authenticity of the record, costs of preservation, importance of the creator of the document, completeness of coverage, time span covered by the record, and relationship of the document to the repository's collecting focus and scope.

Arrangement is the process of organizing archival material using established archival guidelines. Principles used in these guidelines are the provenance and original order of the materials. Provenance refers to the individual, the office, or the agency that produced the records. Records groups are established on the basis of having a common provenance. Hierarchical arrangement of records within the record group can be made into subgroups, series, file units, and then individual documents. Within a records series, arrangement generally maintains the original order, the order in which the records were kept as they were originally created, used, and filed.

Description is the process of documenting information about archival records, such as their content, provenance, context, filing structure, format, and how they can be found. Description is done within standardized forms and it helps to insure access to the records through the production of finding aids. Archival finding aids can take many forms, including guides, inventories, registers, catalogs, indexes, and checklists.

The literature on archives for health care does not seem to identify any issues unique to health care with regard to arrangement or description. However, appraisal was discussed in quite a few papers on health care archives, particularly within the context of the types of material that should be preserved. That is the subject of the next section of this paper.

Types of Material Preserved

Not all archives can preserve all types of material. Pearson[8] emphasized that there should be a coordinated effort "to keep representative samples" or different types of material, or else the preserved record of past health care will be a random collection of items. Pearson[8] used examples of historical events to show that historical research today is largely dependent upon the random collection of material in the past, the consequence of which is that definitive studies of some events cannot be achieved. Sammis[4] pointed out the importance of establishing a collection policy "to outline the goals and the limits to be placed on the types of materials and the subject matter that the archives will accept."

Personal papers of practitioners. The personal papers of practitioners could include items such as personal correspondence, unpublished reports, or miscellaneous items that could document the practitioner's career. The latter could include diaries, scrapbooks, clipping files, diplomas, or certificates.[9] The value of a series of items depends on whether the time span is sufficient to cover the major part of the person's career and whether it provides documentation of important details.[9] But even seemingly insignificant items such as a "receipt for the...tuition at a now defunct...school"[5] could be a key piece of evidence for a researcher.

Jordan[7] noted the lack of objective criteria to evaluate the personal papers of practitioners. He also noted that practitioners at the time that he was writing (1960) were less likely to keep diaries or write personal letters than their predecessors and that such material has been of great value to historians. He suggested that as a result it is important to preserve other types of material as well as the personal material that does become available for preservation.

It is often noted that health care practice is an art as well as a science. Practitioners may rely on their experience rather than following every detail of testing and analysis as set forth in a textbook. Furthermore, it may take some time for the latest research findings to become standard practice. Thus a complete and accurate representation of actual clinical practice may not be gained from printed material. Blake[10] noted that the personal papers of practitioners, even some of the "inconspicuous" ones, are important to the historian to accurately portray health care practice. He did urge selectivity in acquiring collections so that individual archives would not be overwhelmed. He also suggested that local historical societies could be encouraged to preserve the papers of some of the practitioners in their area.

Patient records. Another resource for studying how health care was actually practiced is patient records. It has also been noted that because some practitioners have been significant innovators, "the wholesale loss of such items to posterity would be a serious deficiency."[11] More than one author has observed that when such records are preserved beyond the time of their active use it is generally random and due to accident rather than the result of a well-conceived coordinated plan.[8,12]

There are several reasons why patient records are rarely preserved for future use by historians.[11,13] Clinics or practitioners' offices often have limited space for storage, and a standard practice is to discard records after some time of inactivity to make room for active charts. Not only does storage of records require space, but it also incurs costs. The sheer enormity of records in clinics and offices is an obvious concern. And, of course, an overarching concern is the confidentiality of the records, and who should, or legally can, have access to the records.

The vast majority of health care facility personnel responsible for managing patient records are undoubtedly unaware of the potential use of patient records in the future as historical documents. Higgs and Melling[11] noted that "an important factor in the slow crisis which is overtaking the preservation of modern medical records appears

to be some uncertainty within the health authorities as to their statutory obligations and the opportunities which exist for the preservation and deposit of records which are no longer in current use."

Higgs and Melling[11] identified that major problems standing in the way of future historical use of patient records to be the enormous bulk of materials, identification and selection of appropriate material for preservation, where material should be deposited, when records can be accessed, and how ethical access can be managed. They recommended that the cooperation of historians, social scientists, health care professionals, and archivists will be necessary to formulate solutions to these problems.

Personal papers of scientists. Examination of the personal papers of scientists can help to illuminate how the knowledge of health conditions and their treatments have developed. Such documents may include correspondence, annotated manuscript drafts, unpublished reports, laboratory files, photographs, diaries, and other career documentation.[9] Such material illuminates the process of discovery, the false starts, and the winding path taken to research results, rather than the final conclusions and well defined end-points that are to be found in published journal articles.[14] Such documents show how discoveries happened, which usually is not obvious from formal publications.[15]

Blake[10] pointed out that it may be difficult to decide which scientists should be singled out for preservation of their papers. In the case of political figures, the choices may be more obvious based on the office held by an individual. Identification of scientists could be on the basis of honors, professional recognition, or position.

Personal papers of other persons playing important roles in health care. Such persons could include politicians, philanthropists, patients, or administrators.[10] Historians may find the papers of congressmen who held important positions deciding health care issues to be very useful. For example, the Lister Hill Library of Health Sciences at the University of Alabama Birmingham holds the personal papers of Senator Lister Hill of Alabama. Hill served in Congress for 46 years and for 15 years was a very powerful member of committees on health care matters.[16]

Records of educational institutions. Documentation concerning the education and training of health care practitioners is of potential interest not only for the study of the history of health care, but also in relation "to the entire educational system of a society."[10] Records useful in this regard include meeting agendas and minutes, committee reports, self-study documents, correspondence files, equipment purchase records, grant records, patent records, patient records, annual reports, photographs, memoranda, bulletins, and personnel records.[4,9]

Records of governmental agencies. Examples given by Blake[10] are records of health departments, sanitation departments, and licensing boards, as well as legislative and judicial records dealing with health issues.

Records of organizations and societies. Every health care profession has numerous national organizations, often with hierarchies of regional, state, and local societies. There are also numerous societies which devote themselves to particular interests. Such organizations have often played important roles in the shaping of health care policy and practice. Records of such organizations can be of historical value.[10]

Records of health care industries. This area was not emphasized in the literature. However, with the increase in influence of pharmaceutical companies, health insurance companies, and equipment manufacturers, this area will likely be of interest to future historians.

Correspondence. Correspondence is a subset of many of the sources of material already mentioned, but there may also be other sources of correspondence. Annan[17] noted that "letters from eminent people, letters containing biographical or historical information should be considered of value."

Photographs. Writing about an archives in a medical library, Annan[17] emphasized the importance of getting portraits of institution personnel. Writing about a hospital archives, Coldsmith and Evitts[18] mentioned that photographs were among their most requested items.

Ephemera. Calling cards, announcements, handbills, advertisements, and the like that were produced to be short term items may be of great interest to future historians because they illustrate daily routine activity and commerce. Porter[19] noted that it may be these items which are most at risk of being discarded as the "explosion of paper documentation" puts severe strains on repositories of information. Annan[17] promoted "the survival of the odd bits and pieces scorned as 'ephemera' today, but possibly treasured by the collector tomorrow. These small relics of the past have served to illuminate for the historian the less formal aspects of a previous time."

Other Characteristics of Archives in Health Care

Anderson[9] pointed out that the attributes of good archival collections include uniqueness, coverage, and accessibility. Uniqueness refers to the fact that documents are most valuable for historical research when they are original and their content is not duplicated elsewhere. Good coverage would be characterized by documentation of an entire career or of the time span of an entire organizational entity, as opposed to isolated achievements or events. Issues relating to accessibility include restrictions on use, technological limitations, or fragility of material. Writing about proper facilities, Sammis[4] mentioned that an archives should have closed stacks, proper climate control, appropriate shelving, protection from sunlight, security against unauthorized entry, and protection against fire. He also noted that processing of archival material requires more space than the processing of library material.

The literature on archival preservation relating to health care was generally written in the context of the archives existing within a library. Free-standing archival institutions whose sole mission is to document health care and whose personnel include

persons trained specifically as archivists appear to be rare or non-existent. Writing more than 30 years apart, Annan[17] and Coldsmith and Evitts[18] noted that management of health care archives is usually done by persons originally trained as librarians rather than as archivists.

Developing an Acquisitions Plan

McCall et al.[20] have emphasized the importance of formulating a proactive plan for acquiring useful archival material. They recommend a five part process in developing such a plan: (1) Establish a philosophy to guide acquisition decisions based on the mission of the institution, the mission of the archives, and the envisioned long term development of the archival program; (2) Delineate the intellectual scope of the material to be maintained based on the facilities, functions, administrative structure, and topics of specialization of the institution; (3) Identify the types of materials to be acquired, with designations made for various types of paper-based material, objects, and machine dependent items; (4) Establish standards for selection of material based on intellectual significance, physical stability, and long term ability to maintain technical function; and (5) Make a projection of the ultimate scale of the collection and the rate of acquisition of material based on the capacities of housing, staff availability and technical resources.

Examples of Health Care Archives

A number of published papers have described specific archival repositories documenting health care and have discussed their contents. This cannot be considered anything even beginning to approach a comprehensive listing of archives, but brief summaries of these papers will be given to show some examples of health care archives. The Medical College of Pennsylvania has archives on women in medicine which includes the archives of the college dating back to 1850, papers of women physicians connected with the school, records of women's medical organizations, and records of now defunct medical schools and hospitals for women.[21] The Canadian Medical Association archives contains biographical information, reports and annual meeting material, oral interviews of past association presidents, photographs, meeting minutes, and other items.[22] The archives of the Canadian Dermatology Association holds files containing biographical information on some members, pamphlets, photographs, meeting tape recordings, historical articles on Canadian dermatologists, historical articles on dermatology, and other material.[23] The Indiana University School of Dentistry has an archival collection documenting the school and dentistry in the state of Indiana and the United States.[24] The Cincinnati Medical Heritage Center in the University of Cincinnati Medical Center library system documents the history of medicine in Cincinnati.[25] The archives of the New York Weill Cornell Medical Center preserves records of the center and various predecessor hospitals and schools, as well as the papers of prominent persons associated with the center.[25] The holdings of the archives of the Danish Ophthalmological Society include books of meeting minutes dating back to 1900, photographs, albums, correspondence, publications on the history of the society, financial records, and certificates.[26]

A series of articles have described some of the holdings of the Wellcome Library in London. The archives of the Strangeways Research Laboratory, an independent research laboratory, contains papers of scientists who worked there, diaries, and laboratory correspondence.[27] The archives of the Society of Medical Officers of Health, also held at the Wellcome Library, extend from 1856 to 1997, and documents many aspects of public health in England.[28] Also there are the archives of the Pioneer Health Centre, an experimental program in community public health which lasted from 1926 to 1950, with meeting minutes, photographs, annual reports, some surviving correspondence, publicity items, and various ephemera.[29] The Wellcome Foundation Archive contains the business records of Henry Solomon Wellcome (1853-1936) and his companies. The records of the Wellcome Foundation Archive are primarily from the first half of the twentieth century, and its two thousand boxes contain record books, photographs, audio and video tapes, legal papers, marketing records, financial records, and personal papers of the founders and senior managers.[30] The Francis Crick Archive in the Wellcome Library contains correspondence, meeting notes, and other material from Crick's work at Cambridge from early in his postgraduate career to after his Nobel Prize winning work.[14] In addition to the archival collections at the Wellcome Library, other extensive health care archives in the United Kingdom include archives at St. Batholomew's hospital in London and the Royal London Hospital, the Bethlem Royal Hospital Archives and Museum, the Greater London Record Office, and the archives at the Greater Glasgow health board.[31]

Archives for Optometry

My search of the literature did not find any in-depth articles devoted exclusively to the description of archives for optometry. However, some articles on the International Library, Archives, and Museum of Optometry (ILAMO) at the American Optometric Association (AOA) headquarters in St. Louis have made mention of some of the archival material there. ILAMO traces its origins back to 1902 as a library for use of AOA members.[32] It was incorporated under the ILAMO designation in 1973. The archives at ILAMO include papers and documents relating to AOA history, personal papers of important figures in optometry history, photographs, and other material.[32] Among the personal papers at ILAMO are those of LeRoy Ryer, a noted optometrist who died at the age of 92 in 1972, John McAllister, Jr., whose papers date back to 1822, and Charles Prentice.[33,34] It seems likely that there are various formal and informal archives collections at optometry school libraries and at universities which have optometry schools.

Closing Comments

An assertion pervading much of the literature reviewed is that adequate planning for preservation of potentially useful material is not being done. Also common in the literature is the plea to preserve certain types of material. Obviously not everything can be saved because of the massive bulk of print material. Health care archives should develop clear coherent collection policies and appraisal guidelines. It may also be noted that an issue that was not addressed sufficiently in the literature on health care archives is how to deal with electronic records.

Porter, a medical historian at the Wellcome Trust Centre for the History of Medicine in London, wrote: "Sensible preservation policies must depend upon the closest possible co-operation and communication between librarians, archivists, historians, and policy makers. Future researchers will bless or blame us, depending upon how wisely we act now."[19]

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Book Review: Kepler's Witch: An Astronomer's Discovery of Cosmic Order Amid Religious War, Political Intrigue, and the Heresy Trial of His Mother

Kepler's Witch: An Astronomer's Discovery of Cosmic Order Amid Religious War, Political Intrigue, and the Heresy Trial of His Mother. James A. Connor. New York: HarperCollins, 2005. xiv + 402 pages. ISBN 0-06-075049-9. Paperback, $14.95.

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Johannes Kepler (1571-1630) is a fascinating historical figure. This is clearly expressed by the author on page 2 of the book when he explains why he decided to write about Kepler: "...in 1620 Kepler's mother was being tried for witchcraft. Germany was well into the Thirty Years' War. Kepler had already lost his first wife and little boy to disease, and in the years following he lost three more children. In his life, he was chased out of one town after another by the Counter-Reformation. He was excommunicated by his own church. And yet, throughout most of these years he was writing a book called *The Harmony of the World*. This...is a man worth knowing." He further notes on page 3 that "Johannes Kepler was one of the most powerful scientific minds of his century – he was an equal to Galileo in almost every way, a precursor to Newton, a man who had done the spadework for most of the important discoveries that defined science in the seventeenth century. And yet Kepler was also great in the way Gandhi and Martin Luther King, Jr., are great. He was a man who fought for peace and reconciliation between the Christian churches, even when it nearly cost him his life."

This Kepler biography emphasizes Kepler's personal life, although it does also deal with his scientific work. Each chapter is opened by one to three pages of letters written by Kepler or other excerpts from his writings. The author, James A. Connor, is a former Jesuit priest who is now an English professor. The back cover of the book states that he holds degrees in geoscience, philosophy, theology, and creative writing, along with a doctorate in literature and science.

Kepler was deeply religious, and he refused to compromise his faith. He refused to convert from the Lutheran Church to the Catholic Church when many around him were doing so to advance or protect themselves. Church authorities demanded obedience and conformity. In contrast, Kepler believed that "one had a religious duty to reason through the complexities of the faith..." (page 243). The author describes how Kepler's "self-destructive honesty" and "amazing naivete" when dealing with church officials worked against him, to the point that he was finally excommunicated from his own church.

Kepler's "life as a scientist was as theological as it was scientific. He wanted to find out what God really intended." (page 82) Kepler is best known for his laws of

planetary motion and for confirming the Copernican view of the solar system. But he also established a foundation for Newtonian physics. For example, he "set the stage for Newton's law of gravitation, including the idea that the effect of the moving action decreased with distance." (page 82)

The book contains a few mentions of Kepler's work in optics. He is often recognized as the founder of modern optics. He wrote about optics in books entitled *Astronomiae Pars Optica* and *Dioptrice.* In them, he described the optics of telescopes, gave the first correct description of retinal image formation, discussed lens correction for myopia and hyperopia, explained magnification, and discussed binocular depth perception, among other topics.

The book contains details of Kepler's family life, his patrons (who often neglected to pay him), his struggles with the church, and his moves across Germany to obtain employment and to avoid war, amidst plague and political turmoil. The book includes twelve pages of reference notes, a time line of Kepler's life, a bibliography, and an index. It is highly recommended to anyone wishing to learn more about Johannes Kepler.

Book Review: An Eye for Painting

An Eye for Painting. Philippe Lanthony. Paris: the Munch-Museum and Essilor, 2006. 191 pages. ISBN: 2-7118-5100-1. Hardcover.

This book examines how the visual perception of painters has affected their works and how the visual perception of the admirers of paintings affects how the paintings are understood. The author is a Parisian ophthalmologist who has designed color vision tests and has published extensively on color vision and the vision of painters. The book is appealingly produced in a fairly large format, 29 cm by 25 cm, and offers many full page reproductions of paintings as examples of the principles discussed.

The first nine chapters deal with optics and visual physiology of various aspects of painted scenes and the ways in which visual function affects how scenes are depicted in paintings. Examples of paintings and experimental data are used to illustrate various principles. In the first chapter, for example, data on the photometry of snow and the sky above are used to show how the depiction of snow in paintings is most often more like our expectations than about an accurate reproduction of the brightness of snow and sky. Chapter 2 examines colored shadows. Chapter 3 looks at contrast, and in particular, the work of scientist and painter Charles Lapicque. The next three chapters examine the use of mirrors in paintings and the optical principles involved, the moon illusion, and entoptic images.

Chapter 7 discusses the appearance of the eyes of the painter in self portraits. The author notes that portraits of many famous artists do not exist, but observes that "Failing an individual self-portrait, we can turn to a group portrait by a known artist. As the eyes of the artist who paints himself necessarily look at the spectator, all we need to do is look for the person in the group who is staring at us to be able to identify, with some probability, the author of the picture." (page 85) The author does acknowledge, however, that such attempts lead to "much contradictory speculation about artists' faces." It is mentioned that self portraits probably have a lateral mirror inversion because they were typically painted with the artist looking in a mirror. Also discussed in this chapter are self portraits with spectacles and others showing a strabismus.

In chapter 8, dealing with texture in painting, the author discusses several optical and perceptual principles, including contrast sensitivity and optical mixture of colors. Examining color blindness in artists in chapter 9, the author concludes that "...the commonly held, rather simplistic idea that color-blind artists use strange outlandish colors...so that their works can be recognized at first glance is not borne out by the facts. Experience shows, on the contrary, that a color-blind painter produces painting that is limited by his color deficiency, but that it is scarcely discernible from that done by a painter with normal color vision using the same type of limited palette. As a result, color-blind painters are difficult to detect in the history of art. We cannot diagnose the

condition merely looking at paintings but must take the artist's general behavior into account." (page 143)

The last three chapters discuss the eye and vision problems of three artists. They are illustrated with works of these artists. Charles Meryon was color deficient. It has been suggested that Edgar Degas was highly myopic. The author examined some pairs of spectacles worn by Degas. The spectacles are all tinted. One contains "a slight correction for myopic astigmatism." Another has spherical lenses of -1.50 D for each eye. Degas had some condition which caused photophobia and a scotoma. In the last chapter, the examination of Claude Monet's cataract includes discussion of the effect of cataract on color vision and how the hues used by Monet changed from no cataract to cataract to aphakia.

In concluding this work, the author notes that "...the visible world, that of our physical environment, is not the visual world, but the world as we perceive it, of which a painting offers us a reflection....The painter's eye does not reconstruct a preexisting reality which is that of its visual perception." (page 185) This book is informative and very nicely illustrated. It includes a four page bibliography and an index.

Miscellany

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Erratum: J. Davis Armistead's Alma Mater

In the October, 2007 issue, I discussed an article detailing Buddy Holly's glasses.[1] I incorrectly reported the optometry school which Holly's optometrist, J. Davis Armistead, attended. Richard Hopping was kind enough to write the following to correct my error: "Dr. J. Davis Armistead of Lubbock, Texas was a 1948 graduate of the Los Angeles School of Optometry which became the Los Angeles College of Optometry and then in 1972 became the Southern California College of Optometry."

Joseph Dudley Downing (1925-2007)

Dominick Maino, Professor at the Illinois College of Optometry, recently wrote seeking information concerning Joseph Dudley Downing and wishing to contact persons who may have known Downing. Downing was a Northern Illinois College of Optometry (NICO) graduate and a famous artist. I tried my usual first step in answering historical inquiries – I consulted the accumulated indexes for the first thirty volumes of *Hindsight*. I found nothing there. I next tried a Google search for information on Downing. The following is summarized from a number of websites that I found from that search.

Downing was born November 15, 1925 in Tompkinsville, Kentucky, and died December 29, 2007 in the Provence area of France. Downing grew up on a farm near Horse Cave, Kentucky, and graduated from high school in 1943. He served in France in World War II as an artillery observer and earned a Bronze Star. Following the war he studied art at Western Kentucky University for a short period of time and then attended NICO. He graduated from NICO in 1950. While at NICO he attended some art classes at the Chicago Art Institute. He may never have practiced optometry, because in 1950 he returned to France where he then resided and pursued his art interests.

It is said that Downing received encouragement from Pablo Picasso, who in 1952 proclaimed "well done" when viewing a display of Downing's work. His art has been exhibited in numerous countries and in the permanent collections of museums in Europe, North America, and Australia, including the Paris Museum of Modern Art, the Smithsonian Institution, and the Museum of Modern Art in New York City. Downing invented the form of art which is known as stapleage, collages made by stapling together office supplies. He also published articles on art and two books of poetry.

Dom Maino is wishing to contact persons who knew Downing as a classmate, artist, or acquaintance. If you happen to have known Downing, contact Maino at dmaino@ico.edu.

Series of Articles on Contact Lens Pioneers in *Review of Optometry*

The *Review of Optometry* published a series of three articles on contact lens pioneers in its July, August, and September issues.[2-4] The first article contained profiles of five persons who were particularly important in the early development of contact lenses. The second article examined the contributions of various individuals and research groups in three areas – characterizing and addressing the need of the cornea for oxygen, developing lens materials and lens designs, and producing contact lens solutions. The emphasis of the third article was a discussion of the practitioners who had the first contact lens only practices. Also briefly discussed in the third article were the Cornea and Contact Lens Section of the American Academy of Optometry, begun in 1947, and the Contact Lens and Cornea Section of the American Optometric Association, established in 1981. Past Chairs of those groups and various other persons identified by the authors as leaders in the field of contact lenses are listed in several tables.

I thought that the first article was particularly noteworthy. The first of the contact lens notables that the authors profiled was William Feinbloom (1904-1985). Feinbloom graduated from the optometry school at Columbia University in 1923. Feinbloom was especially noted for his work in low vision. The authors identified Feinbloom's main contributions in contact lenses to be developing a system for fitting scleral lenses, the formation of a contact lens company (Frontier), and the first patent of a contact lens containing plastic. Kevin Tuohy (1921-1968) was a California optician who patented the first corneal contact lens in 1948. That lens was made of polymethyl methacrylate (PMMA). PMMA had been used in scleral lens designs at the time.

Newton K. Wesley (born 1917) often receives credit for the development of the first contact lens to achieve commercial success. The authors observe that he is also known for his teaching skills. Wesley and George Jessen formed the Plastic Contact Lens Company, subsequently called Wesley Jessen VisionCare, Inc., and later, in 2001, purchased by CIBA Vision. Wesley founded the National Eye Research Foundation, an organization emphasizing work in contact lenses, orthokeratology, and keratoconus, in 1955.

Otto Wichterle (1913-1998) was a polymer chemist in Czechoslovakia who with Drahoslav Lim produced the first hydrogel material, hydroxyethyl methacrylate (HEMA), in 1954 while working on biocompatible materials. He later worked on developing that material into a contact lens. He was aided in that quest by several persons, including American optometrist Robert Morrison. Wichterle received U.S. patents for his lenses in 1962 and 1965. Wicheterle's lifetime coincided with times of political turmoil in Czechoslovakia which sometimes hindered his work and limited his recognition for it. Late in his life he was named president of the Czech Academy of Sciences.

Robert Morrison (born 1924) attended Pennsylvania College of Optometry after service in World War II. After completing optometry school, he established a practice in Harrisburg, Pennsylvania, and later a part-time practice in New York City. Morrison first met with Otto Wichterle in 1961. The article credits Morrison with the foresight to

recognize the potential of hydrophilic material for contact lenses and the persistence to aid Wichterle in the development of the material for that purpose. The authors also mentioned Morrison becoming known as the optometrist for the "rich and famous." The first two articles of this series include 17 reference citations that could be used to obtain further historical information.

On the History of Binocular Ophthalmoscopy

Ophthalmologist Harry Mark published an article entitled "On the Evolution of Binocular Ophthalmoscopy" in the June, 2007 issue of Archives of Ophthalmology.[5] By the time of the invention of ophthalmoscope in 1851, Charles Wheatstone had already invented the mirror stereoscope (1838) and David Brewster the prism stereoscope (1843). Brewster published his book, *The Stereoscope, Its History, Theory and Construction, With Application to the Fine and Useful Arts and to Education*, in 1856. In 1861, Marc-Antoine-Louis Felix Giraud-Teulon (1816-1887) announced the invention of a binocular ophthalmoscope that yielded a stereoscopic view. An improved version was introduced by John Zachariah Laurence (1830-1874) in 1862. However, due to methodological problems, these binocular ophthalmoscopes did not achieve lasting acceptance. The author credits Charles Schepens, who died in 2006, with reviving binocular indirect ophthalmoscopy in the 1950s.

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Instructions to Authors

Hindsight: Journal of Optometry History is the official publication of the Optometric Historical Society (OHS), and, as such, supports and complements the purposes and functions of OHS. The journal publishes articles, reports, book reviews, letters to the editor, and article reviews. The topics of material published in the journal include: history of optometry; history of eye and vision care; history of spectacles, contact lenses, and other corrective devices; history of vision therapy, low vision care, and other vision care modalities; history of vision science; biographical sketches of persons who have worked in or influenced optometry and/or vision science; recollections or oral histories of optometrists and persons who have worked in optometry and optometry-related fields; and related topics.

Material submitted for publication should be sent to the editor: David A. Goss, School of Optometry, Indiana University, Bloomington, IN 47405; dgoss@indiana.edu.

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Extensive use of uncommon abbreviations, symbols, and acronyms is discouraged. Common abbreviations, such as D for diopters or cm for centimeters, may be used. Common symbols, such as Δ for prism diopters, may be used when the context for their use is clear. The first use of acronyms should be accompanied by the name or phrase spelled out followed by the acronym in parentheses, as for example: The Optometric Historical Society (OHS) has produced a quarterly publication since 1970.

Acknowledgments should be placed between the text of the article and the reference section. Sources of support, such as grant funding or other significant assistance, should be acknowledged. The assistance of persons who contributed to the work may also be acknowledged.

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Journal articles:
Calvo M, Enoch JM. Early use of corrective lenses in Spanish colonies of the Americas including parts of the future United States: reference to Viceroy Luis de Velasco (the son). Optom Vis Sci 2003;80:681-689.

Section in a single author book:
Hofstetter HW. Optometry: Professional, Economic, and Legal Aspects. St. Louis: Mosby, 1948:17-35.

Chapter in a multi-author volume:
Penisten DK. Eyes and vision in North American Indiana cultures: An historical perspective on traditional medicine and mythology. In: Goss DA, Edmondson LL, eds. Eye and Vision Conditions in the American Indian. Yukon, OK; Pueblo Publishing, 1990:186-190.

Citations to articles in *Hindsight: Journal of Optometry History* should be given as follows:
Bennett I. The story behind Optometric Management magazine. Hindsight: J Optom Hist 2007;38:17-22.